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ABSTRACT

The study attempted to determine the relative accuracy with which 290 college students anticipated the responses of a group of 65 educable mentally retarded (EMR) males (11- to 14-years-old) and a group of 66 normal children (10- to 14-years-old). Anticipations were analyzed according to the students' sex, academic major, age, hours in special education courses, and experience with EMR children. Data indicated that all groups of college students anticipated the nonretarded children's responses at a reasonable level of accuracy (mean of 13.2 correct answers out of a possible 24), but that none of the groups correctly anticipated responses of EMR Ss at any level of proficiency (mean of 5.5 correct answers out of 24). However, special education majors, students in special education courses, students who had had experience with EMR children, oldest students, and females were better than their counterparts in anticipating responses of the EMR group. It was found that graduate special education majors did not anticipate more accurately than undergraduate majors, and that students who had taken two or three special education courses anticipated EMR responses as poorly as students with no special education background. Findings were thought to show that students are oversensitized to the differences between EMR and nonretarded children to such an extent that their anticipations of EMR responses are as poor as those of students without special training. (GW)

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ANTICIPATION of Cognitive Behavior of Mentally Retarded and Normal Children

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Introductory courses in special education are offered to students year after year. Most of these offerings purport to develop a better "understanding" of the handicapped child. Introductory courses in the field of mental retardation, for example, offer college students an opportunity to acquire knowledge about the condition so as to better understand children who are characterized by the set of variables which define the mentally retarded population. Textbooks, articles, and lectures are frequently used to meet this objective. College texts and lectures frequently refer to short attention span, short-term memory deficits, poor abstract ability, etc., but not all mentally retarded pupils reveal these deficits in their educational functioning. Hence, traditional approaches toward deriving an understanding of the mentally retarded population frequently lead to generalizations with questionable external validity when teacher trainees subsequently test them against their direct experiences with children labeled mentally retarded in the public schools. It is obvious that knowledge of retarded children consists of more than an academic understanding of mean or modal functioning levels of the population.

If we are to improve initial course offerings in the field of mental retardation it appears necessary to evolve an operational definition of the concept "understanding the retarded child." For a teacher, understanding a retarded child is manifested in the ability to anticipate the child's behavior in domains relevant to the curriculum. Hence, when the teacher prepares to interact with a handicapped child he must anticipate the child's reactions to the materials, content level, method of presentation, etc. to

determine the appropriateness of the planned interaction. When directly interacting with the child, the teacher must constantly monitor responses, draw upon his memory of the child's previous response tendencies, anticipate responses, and adjust his behavior in accordance with desired pupil outcomes. The extent to which teachers can accurately anticipate pupil behaviors within specific curriculum contents appears to be a reasonable criterion for assessing the teacher's understanding of the child. The criterion appears equally valid when applied to anticipations of the modal responses of defined groups of mentally handicapped children.

The construct of anticipation involves the use of a previously formed concept to deduce characteristics of an event which could occur. The concept itself results from induction based on past experience with or knowledge about similar events, and the anticipation can result in a deductive prediction concerning these events if they occur again. The notion of anticipation is an extension of personal construct (Kelly, 1955), cognitive dissonance (Maddi, 1968), and attribution (deCharms, 1968) theories. Kelly, a personal construct theorist, states that each individual's behavior patterns and thought processes are channeled by the way he anticipates events (Kelly, 1955; Kelly, 1961). Festinger and McClelland, cognitive dissonance theorists, state positions similar to Kelly's in several ways (Festinger, 1961; Maddi, 1968). A central notion in both cases is that a person uses his expectancies to anticipate future events. Attribution theory has been defined as the use of a general concept to explain specific instances of behavior (deCharms, 1968). Again, anticipation relates the general concepts to predictions of future events as based on these concepts.

Research studies in this area are of two main types: those concerned with the result of different expectancies on subjects or students and those involved with actual teacher prediction of student performance. Of the former, the most widely cited work is that presented in Pygmalion in the Classroom by R. Rosenthal and L. Jacobsen (1968). Although this work has been questioned on methodological grounds (Elashoff & Snow, 1971; Jose, 1970; Snow, 1969; Thorndike, 1968), its major assertion is that differential expectations of the teacher (or experimenter) result in corresponding differential treatment of the students (or subjects), which in turn results in differential behavior by the students that reinforces the teacher's original expectations--the self-fulfilling prophesy. Rosenthal's work has led to a number of studies of experimenter-expectancy effects, or self-fulfilling prophesy. Brophy and Good (1970) and Minor (1970) concluded that experimenter-expectancy effects do exist, although other variables such as sex of subject and concern of the subjects with their performance influence the extent to which self-fulfilling prophesy affects the results.

Studies concerned with teacher prediction of pupil performance date back several decades. Some of these have concluded that teachers cannot predict future student performance as well as standardized tests can (Lee, Clark, & Lee, 1934), while others have reached the opposite conclusion (Carr & Michaels, 1941). Finley (1966) indicated that contradictory results often occur because of the criterion test measure used. He used three different standardized tests as criterion measures to compare against the teachers' ratings. His results indicated that opposing conclusions would be reached depending on which of the three

tests was used as the criterion.

In this study, an operational definition of anticipation is developed, and its use is explored in relation to teacher-training. An attempt is made to determine how accurately different college student groups anticipate responses of a group of educable mentally retarded (EMR) and normal children, respectively. The study seeks to relate differences in anticipation accuracy to specific anticipator characteristics. It explores the extent to which these different groups of college-level students "understand," i.e., can accurately anticipate the responses of, retarded and normal children within the context of the domains sampled through the items used.

Phase I--Normative Data Base

In the initial phase of the present study, a group of children classified as EMR and a group of non-retarded children were asked to respond to a set of questions. The purpose of this test was to determine the frequency of occurrence of any response to a given question. The test items and resulting set of responses were collected in order to prepare a data base for the construction of an instrument to determine whether or not selected groups of adults can accurately anticipate which responses EMR and normal children are most likely to give.

METHOD

Subjects

The non-retarded population tested consisted of 66 ten to fourteen-year-olds from lower and lower-middle socio-economic class backgrounds. Fifty of those tested were male, and sixteen were female. Only four of

the total population were black. Intelligence quotients ranged from 90 to 116. The Whitmore Lake Junior High School and the St. Boniface Elementary School of Detroit provided the non-retarded population tested.

The educable mentally retarded population was drawn from the Wayne County Child Development Center in Plymouth, Michigan. A total of 65 male children between the ages of eleven and fourteen who were basically from the lower socio-economic strata were tested. Twenty-five of the children were black and 24 were white; no breakdown of the remaining 16 is available. Intelligence quotients ranged from 60 to 89. None of the children had known sensory handicaps or speech defects.

Materials

The original set of test questions consisted of 25 items. The questions were designed to emphasize cognitive processes rather than academic skills or achievement. The items logically fell into three broad categories: (a) questions that elicited imaginative and free association responses and for which there was no one correct answer; (b) questions that required a problem-solving response to a situation but for which there was no one correct answer; and (c) questions that required problem solving and for which there was only one correct answer. In these items, the correct response was contained in or could be inferred from the question.

Procedure

The test was administered orally to each individual child. The administration procedure was standardized: a time limit of 15 seconds per response was set, testers read each question only once unless asked to repeat it, the note cards containing the individual questions were

shuffled after each administration, and the children were told that this was not a regular classroom test with right and wrong answers.

RESULTS

The results were summarized into the frequency and percentage of occurrence of each response to each question.

In 16 out of the 24 questions, the most frequent responses given by both the non-retarded and EMR groups of children were identical.

The different number of responses to each question appeared to be related to both the type of question and the level of difficulty. When the items were classified by type of question, the range of differential responding was as follows: Group I questions (imaginative, free association) generated the greatest number of different responses, ranging from 16 to 25 in the non-retarded group and 19 to 33 for the EMR population; Group II questions (problem solving with no one correct solution) generated an intermediate number of responses which ranged from 5 to 15 for the non-retarded group and 10 to 28 in the retarded population; Group III items (problem solving with one correct answer) generated the lowest number of different responses to the questions, which ranged from 1 to 7 for the non-retarded group and 4 to 12 for the EMR group. This description of range excepts question number 15 which proved extremely difficult and generated a great number of different responses--25 in the normal group and 28 in the EMR group.

Phase II--Anticipation Study

The purpose of the second phase of the study was to determine how accurately groups of college students with different characteristics could anticipate the most common responses given by EMR and non-retarded children to the set of questions described in Phase I.

METHOD

Subjects

Seventy-seven males and 213 females from Indiana University participated in the study. These subjects were recruited from courses in undergraduate educational psychology (N=83), undergraduate psychology (N=52), undergraduate special education (N=59), and graduate special education (N=96). Table 1 contains frequency distributions describing the subjects in terms of age, academic major, credit hours in Special Education, and experience with EMR children.

Insert Table 1 about here

Materials

A questionnaire was developed consisting of 24 of the original 25 items that were used to gather children's responses in Phase I; one question was discarded, since it was found to be an ambiguous item.

From the available pool of children's responses, ten were selected for each question. The five most frequently-given responses by both the non-retarded and EMR samples were included. In some instances this selection process did not result in a total of 10 responses, since both samples sometimes gave the same responses to a question. In those cases responses with lower frequencies were then included. Table 2 contains sample questions and responses from the resulting questionnaire.

Insert Table 2 about here

The 24 questions, each with 10 corresponding answers, were duplicated and assembled into a booklet. Subjects were directed to read each question and set of answers and to indicate which answer was most commonly given by each group of children, EMR and non-retarded. A brief description of the children in each group as well as the mode of collection of the normative data were also furnished to the college students.

Procedure

The questionnaire was presented during a regular class session. Testing took place during the last two weeks of classes of the spring semester, 1971.

Demographic information was collected from the subjects on the following variables: sex, age, academic major, hours in special education courses, and experience with retarded children.

Dependent Measures

Two dependent measures were devised: (1) number of correct anticipations of EMR and non-retarded children separately and (2) congruency score. The number of questions correctly anticipated based on the highest-percentage response to the question by each sample of children was calculated, with a possible score of 24 for each subject on each sample. The congruency score consisted of the number of questions out of the 16 where the most frequent responses given by the non-retarded and EMR children were identical in which the subject anticipated the same response for both samples.

RESULTS

Six subject variables were chosen for analysis: sex, academic major, age, hours in special education courses, experience with EMR chil-

dren, and the course in which the subject was enrolled while engaging in the study.

The correlation between the congruency score and the number correct for EMR children's responses was highly significant (r=.915, df=289, p .001); the correlation between the number correct for EMR and normal children was not significant (r=.11). Because of these correlations, only analyses based on the two number correct variables are presented. On these variables, the range of correctly anticipated responses (EMR) for the total subject pool was 0 - 15; the range (non-retarded) was 5 - 18. Each of the subject variables was analyzed in a two-way fixed analysis-of-variance design with repeated measures over the effect of the two samples of children (EMR and non-retarded).[1]

Factor analyses were performed on the subject's responses to the questionnaire.

Sex. The main effect of sex was significant (F=4.59, df=1,288, $p<.05$) with females (mean = 9.5, s.d.=2.6) having higher scores than males (mean = 8.9, s.d.=2.9). The main effect of children sample was significant (F=1296.8, df=1,288, $p<.001$) with scores on non-retarded children (mean = 13.2, s.d.=2.2) higher than those on EMR children (mean = 5.5, s.d.=3.2).[2]

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1 Regression analysis is a better type of analysis to use with this design, but two of the subject variables, age and hours in special education courses, were not linearly related to the dependent variables. Hence, regression was not used.

2 The main effect of children sample remained approximately constant from analysis to analysis; small changes resulted because of a small amount of missing data on some of the subject variables. Since the effect was always significant, it is reported for the first analysis only. Two-ways ANOVA's were used on the remaining analyses to examine interaction effects.

The interaction of sex and children sample was significant ($F=35.5$, $df=1,288$, $p<.05$). ~~Newman-Keuls~~ Scheffé post-hoc comparisons indicated that females scored significantly better than males in anticipating EMR responses ($p<.01$); females and males did not differ significantly in anticipating normal responses. See Figure 1 for a plot of this interaction.

Figure 1 about here

Age. On this variable, the subjects were divided into the following groups: 18-19 years old, 20-21, 22-23, and 24+.

The main effect of age was significant ($F=3.40$, $df=3,279$, $p<.05$). Post-hoc analyses using the Scheffé method indicated that the 24+ group scored significantly better than the 22-23 group ($p<.05$). See Table 3 for means and standard deviations.

Insert Table 3 about here

The interaction effect was not significant, although more of the variation between the groups was in the responses to the EMR, not the the non-retarded, children.

Academic Major. The subjects were divided into five categories according to their reported major: special education, elementary education, psychology, secondary education, and other. This main effect was significant ($F=6.48$, $df=4,275$, $p<.001$). Scheffé post-hoc analyses indicated that special education majors anticipated responses significantly more accurately than did psychology and other majors ($p<.01$). See Table 4 for these means and standard deviations. Again the interaction effect was not significant, although more of the variation between groups was found for the responses to the EMR, rather than the non-retarded, children.

Insert Table 4 about here

Semester Hours in Education. Subjects were divided into the following groups: 0 hours, 1-3, 4-6, 7-9, 10-12, 13+. The hours main effect was significant (F=4.12, df=5,266, p<.01). Scheffé post-hoc analyses showed no significant differences, but as Table 5 indicates, the 13+ group had the highest mean score while the 7-9 and 0 groups had the lowest scores.[3] The interaction effect was also significant (F=2.54, df=5,266, p<.05). Scheffé post-hoc tests indicated that there were no differences among any groups in correctly anticipating the responses of retarded or non-retarded children. However, there was more relative variation between the groups in anticipating EMR children's responses; again, the 13+ group had the highest scores and the 7-9 and 0 groups the lowest. Table 5 presents these means and standard deviations, and Figure 2 is a graph of the interaction.

Insert Figure 5 about here

Insert Figure 2 about here

Experience with EMR Children. Subjects were divided into four groups: no experience, little experience, moderate experience, and extensive experience. This main effect was significant (F=4.60, df=3,286, p<.01). Scheffé post-hoc analyses indicated that those subjects with extensive experience anticipated children's responses better than those with no

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[3] The Scheffé method of post-hoc analyses is very conservative; hence, this result is reasonable.

($p<.01$) or little ($p<.05$) experience; also, those with moderate experience anticipated better than those with none ($p<.05$). The interaction effect also was significant ($F=3.34$, $df=3,286$, $p<.05$). Scheffé post-hoc analyses indicated that subjects with extensive experience anticipated EMR response better than those with none ($p<.05$); there were no differences among the groups in anticipation of normal responses. Table 6 presents these means and standard deviations, and Figure 3 is an interaction plot.

Insert Table 6 about here

Insert Figure 3 about here

Current Course Enrollment. Subjects were split into four groups: undergraduate special education, undergraduate educational psychology, undergraduate psychology, and graduate special education. The main effect of course was significant ($F=2.80$, $df=3,286$, $p<.05$). The Scheffé method of post-hoc analyses indicated no significant differences, although subjects in special education graduate and undergraduate courses had the highest anticipation scores. The interaction effect also was significant ($F=3.31$, $df=3,286$, $p<.05$). Scheffé tests indicated no differences among groups in anticipating retarded or non-retarded children's responses, although students in undergraduate and graduate special education courses had approximately equal mean scores and these scores were higher than those of the students in undergraduate educational psychology and undergraduate psychology. Table 7 presents these means and standard deviations, and Figure 4 shows the interaction effect.

Insert Table 7 about here

Factor Analyses. Factor analyses were performed on the subject's responses to the questions for EMR and for non-retarded children. The principal component solution, with squared multiple correlations in the diagonal, and a varimax rotation of factors with eigenvalues greater than or equal to one were used. The major purpose of the analyses was to determine the factor validity of the a priori classification of the questions into: imaginative, free associative; problem solving with no one correct answer; and problem solving with one correct answer.

For the anticipation of EMR responses, the analysis resulted in one factor only. The questions that loaded highest on this factor were problem-solving questions for which there was only one correct answer. This factor accounted for 71.7% of the variance for the retarded population. For the non-retarded responses, the analysis also resulted in one factor accounting for 43.4% of the variance. This factor was similar to the one found for EMRs but was not nearly as strong. The items that loaded heavily on this factor were also problem-solving questions for which only one answer was correct. The other two types of questions did not load heavily. Hence, the factor analyses did not support the a priori classifications.

DISCUSSION

The results of the factor analyses, done on the subjects' responses for both EMR and normal children, indicate that the questionnaire basically is homogeneous. Although there logically are three types of items involved in the questionnaire, only one factor resulted. In both cases, it is characterized by high loadings from the problem-solving, one-correct-answer type of item. This indicates that a "purer" factor structure as

well as a more reliable measure would occur if the other types of items were eliminated from the questionnaire.

In general, the results from the study indicate that all groups of college students can anticipate non-retarded children's responses at a reasonable level of accuracy (mean of 13.2 correct out of a possible 24). However, none of the groups correctly anticipated EMRs' responses at any level of proficiency (mean of 5.5 correct out of 24). Given that no group does very well at that task, the following groups of students were better at anticipation of EMR responses than were their counterparts: special education majors, students in special education courses, students who have had experience with EMR children, oldest students, and females.

Although special education majors are better at anticipating EMR responses than other groups, their accuracy does not improve as they progress through the program: graduate special education majors do not anticipate more accurately than undergraduate majors. However, undergraduates generally become better anticipators as they progress through the undergraduate portion of the program.

The analysis of the questionnaire revealed that on 16 of the 24 questions the most frequent response given by EMR and normal children was the same. From the results of the anticipation part of the study, it is clear that the college students, even the special education majors, did not give the EMR children credit for responding as normal children would. One explanation of this may concern the content of special education courses and courses on the exceptional child. Most of the courses emphasize the differences between mentally retarded and non-retarded children. Also, the label "mentally retarded" undoubtably contributes to the idea that EMR children are different.

Another interesting and unexpected finding is that students who have had between seven and nine semester hours of special education courses (i.e., two or three courses) do as poorly in anticipating EMR responses as those with no hours in the field. Perhaps at this point in coursework, students are oversensitized to the differences between EMR and non-retarded children to such an extent that their anticipations of EMR responses are as poor as those students who have never had any courses in the field. If this result is general and can be replicated at other institutions, it has some important implications for special education training programs. Either the courses should be modified to deemphasize differences or present the differences in some other manner, or prospective teachers who will be working with EMR children should take more than nine hours of work in special education.

In essence, it appears that the special education majors who will be teaching mentally retarded children are not highly accurate in anticipating the children's cognitive responses. They appear to expect EMR children to perform at a lower cognitive level than normal children of comparable age. Because of this belief, they may teach at a lower level than necessary and/or communicate their low expectations to their students. This may result in the children actually performing to meet the teachers' low expectations and hence setting up a vicious self-fulfilling prophesy. Obviously, this is conjecture needing further investigation. However, the work reported by Beez (1970) tends to support this view.

Groups who are most familiar with EMR children (majors, those who have had experience with EMR chidlren, and those enrolled in special

education courses) apparently recognize the similarities or at least understand EMR children well enough to anticipate their responses better than other college groups, although they still only anticipate EMRs responses of non-retarded children.

This study gives an indication that there are points of common ground between normal and EMR children that need to be explored and taught, not only to future special education teachers but also to all future teachers.

This study is a radical departure from the two types discussed in the introduction. It operationally defines anticipation and has subjects anticipate the results of cognitive events. It develops the use of the construct of anticipation in exploring what various groups of college students know about retarded and non-retarded children's cognitive behaviors.

Table 1

Frequency Distributions of Subject Variables

Variable	N
Age	
18-19	43
20-21	165
22-23	37
24+	38
No data	7
Major	
Special Education	88
Elementary Education	51
Psychology	56
Secondary Education	18
Other	67
No data	10
Hours in Special Education	
0	135
1-3	66
4-6	29
7-9	16
10-12	12
12+	15
No data	17
Experience with EMR Children	
None	204
Little	43
Moderate	26
Extensive	17

Table 2. Sample questions and responses from the three item types used in the questionnaire.

Group 1. Imaginative, free-association:

What kind of a friend would a rock make?

a. No response
b. A quiet one
c. A good one
d. No friend[E]
e. Souvenir
f. Weighty
g. A bad one
h. Don't know
i. Another rock
j. A hard one[N]

What is the first thing that comes to your mind when I mention the word mother?

a. Cook
b. Father[E,N]
c. Baby
d. Home
e. Housework
f. Nice
g. Don't know
h. Mom/Mother
i. Kindness
j. Love

Group 2. Problem-solving, No One Correct Answer:

If you were locked in a bathroom without a key, how would you get out?

a. Bust a hole in the window
b. Scream
c. Call my family
d. Kick the door down
e. No response
f. Call the police
g. Unlock the door
h. Go out the window[E,N]
i. Take the hinges off
j. Knock (pound) on the door

What would you do if you wanted something which cost more than you had?

a. Save for it
b. Wouldn't buy
c. Earn more money[N]
d. Steal it
e. Ask a parent
f. Charge it
g. Spend it
h. Get more money
i. Get something else for less
j. Go home and get more money[E]

Group 3. Problem-solving, One Correct Answer:

All boys will become men. John is a boy. What will John become?

a. A teacher
b. A father
c. A truckdriver
d. Old
e. No response
f. A teenager
g. Don't know
h. A man[E,N]
i. A lady
j. A major

White goes with black as day goes with _____.

a. Night[E,N]
b. Morning
c. White
d. Brown
e. Sun
f. Blue
g. Green
h. Don't know
i. Light
j. Dark

[E]Most frequent response given by EMR children.

[N]Most frequent response given by non-retarded children.

TABLE 3

MEANS AND STANDARD DEVIATIONS OF NUMBER CORRECT FOR AGE

Age	Children: EMR	Children: Normal	Children: Total
18 & 19			
Mean	5.21	13.54	9.37
S.D.	3.01	2.13	2.61
20 & 21			
Mean	5.41	13.32	9.37
S.D.	3.25	2.01	2.70
22 & 23			
Mean	4.60	12.30	8.45
S.D.	2.65	2.32	2.49
24, Up			
Mean	6.66	13.13	9.89
S.D.	3.54	2.46	3.05
Total			
Mean	5.44	13.19	9.32
S.D.	3.22	2.15	2.74

TABLE 4

MEANS AND STANDARD DEVIATIONS OF NUMBER CORRECT FOR ACADEMIC MAJOR

Major	Children: EMR	Children: Normal	Children: Total
Special Education			
Mean	6.53	13.72	10.13
S.D.	3.35	2.04	2.77
Elementary Education			
Mean	5.61	13.12	9.36
S.D.	3.37	1.99	2.77
Psychology			
Mean	4.70	12.59	8.64
S.D.	2.91	2.37	2.65
Secondary Education			
Mean	5.28	13.22	9.25
S.D.	2.78	1.40	2.20
Other			
Mean	4.76	12.90	8.83
S.D.	2.91	2.24	2.60
Total			
Mean	5.49	13.15	9.32
S.D.	3.21	2.14	2.73

TABLE 5

MEANS AND STANDARD DEVIATIONS OF NUMBER CORRECT

FOR SEMESTER HOURS IN SPECIAL EDUCATION

Hours	Children: EMR	Children: Normal	Children: Total
None			
Mean	4.60	13.00	8.80
S.D.	2.99	2.23	2.64
1-3			
Mean	5.92	13.17	9.55
S.D.	3.12	2.06	2.64
4-6			
Mean	6.31	13.76	10.03
S.D.	3.41	2.20	2.87
7-9			
Mean	4.63	13.25	8.94
S.D.	2.94	2.27	2.63
10-12			
Mean	6.92	12.58	9.75
S.D.	3.06	2.43	2.76
13 Plus			
Mean	7.47	13.80	10.46
S.D.	1.51	1.52	1.52
Total			
Mean	5.36	13.16	9.26
S.D.	3.12	2.17	2.69

TABLE 6

MEANS AND STANDARD DEVIATIONS OF NUMBER CORRECT

FOR PAST EXPERIENCE WITH EMR CHILDREN

Experience	Children: EMR	Children: Normal	Children: Total
None			
Mean	5.02	13.15	9.08
S.D.	3.12	2.13	2.67
Little			
Mean	5.98	13.07	9.52
S.D.	2.78	2.04	2.44
Moderate			
Mean	6.69	12.96	9.83
S.D.	3.12	2.57	2.86
Extensive			
Mean	7.53	14.00	10.76
S.D.	4.38	2.03	3.41
Total			
Mean	5.46	13.17	9.32
S.D.	3.23	2.15	2.74

TABLE 7

MEANS AND STANDARD DEVIATIONS

OF NUMBER CORRECT FOR CURRENT COURSE ENROLLMENT

Course		Children: EMR	Children: Normal	Children: Total
Educational Psychology (Undergraduate)				
	Mean	4.76	13.25	9.01
	S.D.	3.21	1.87	2.63
Psychology (Undergraduate)				
	Mean	4.31	12.64	8.47
	S.D.	2.72	2.47	2.60
Special Education (Undergraduate)				
	Mean	6.15	13.53	9.84
	S.D.	3.43	1.63	2.68
Special Education (Graduate)				
	Mean	6.26	13.17	9.75
	S.D.	3.09	2.44	2.78
Total				
	Mean	5.46	13.17	9.32
	S.D.	3.23	2.15	2.74

Figure 1. Mean number of responses correct on EMR and non-retarded children for male and female subjects.

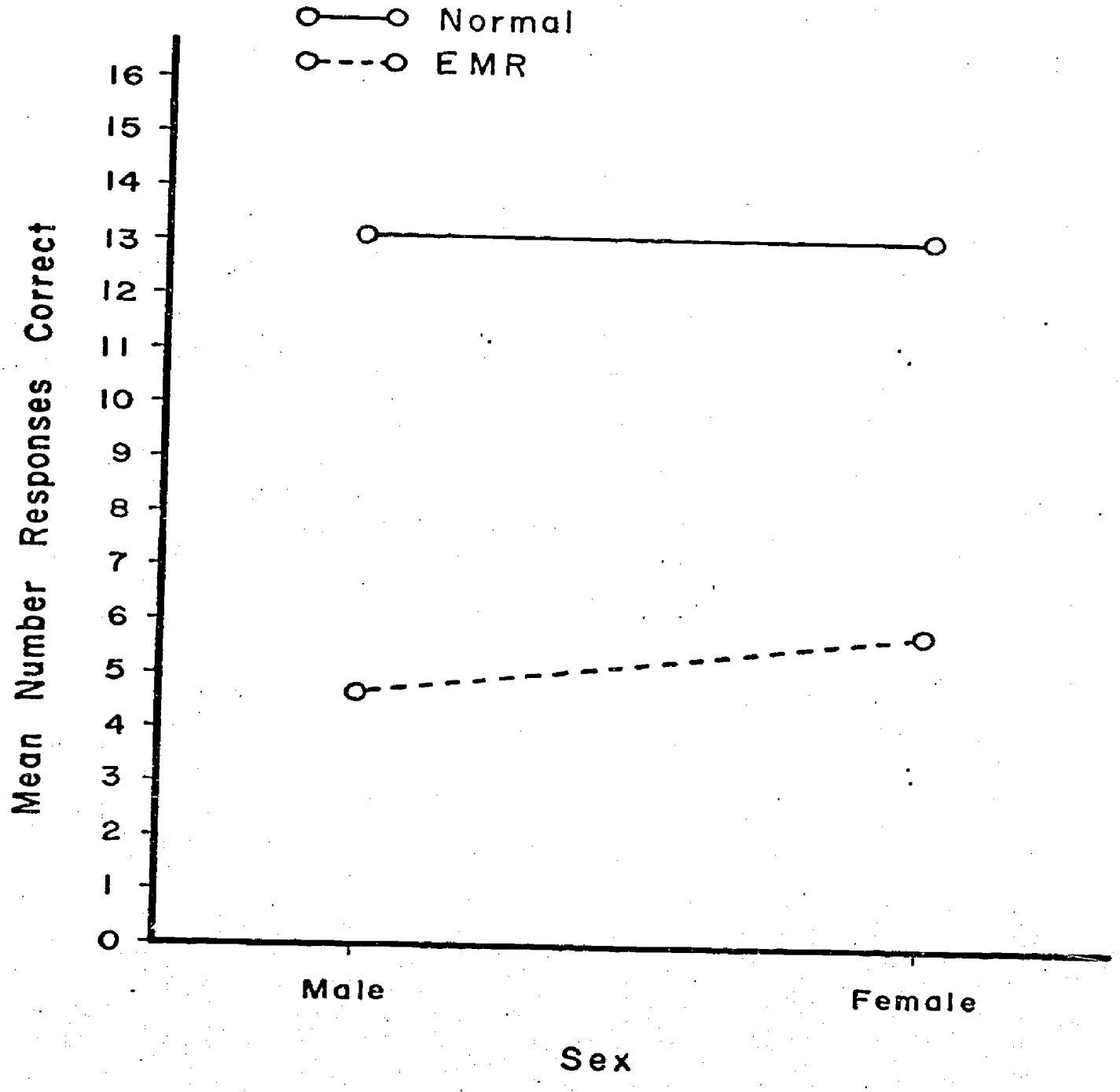

Normal
EMR
Mean Number Responses Correct
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Male
Female
Sex

Figure 2. Mean number of responses correct on EMR and non-retarded children for number of semester hours in special education courses.

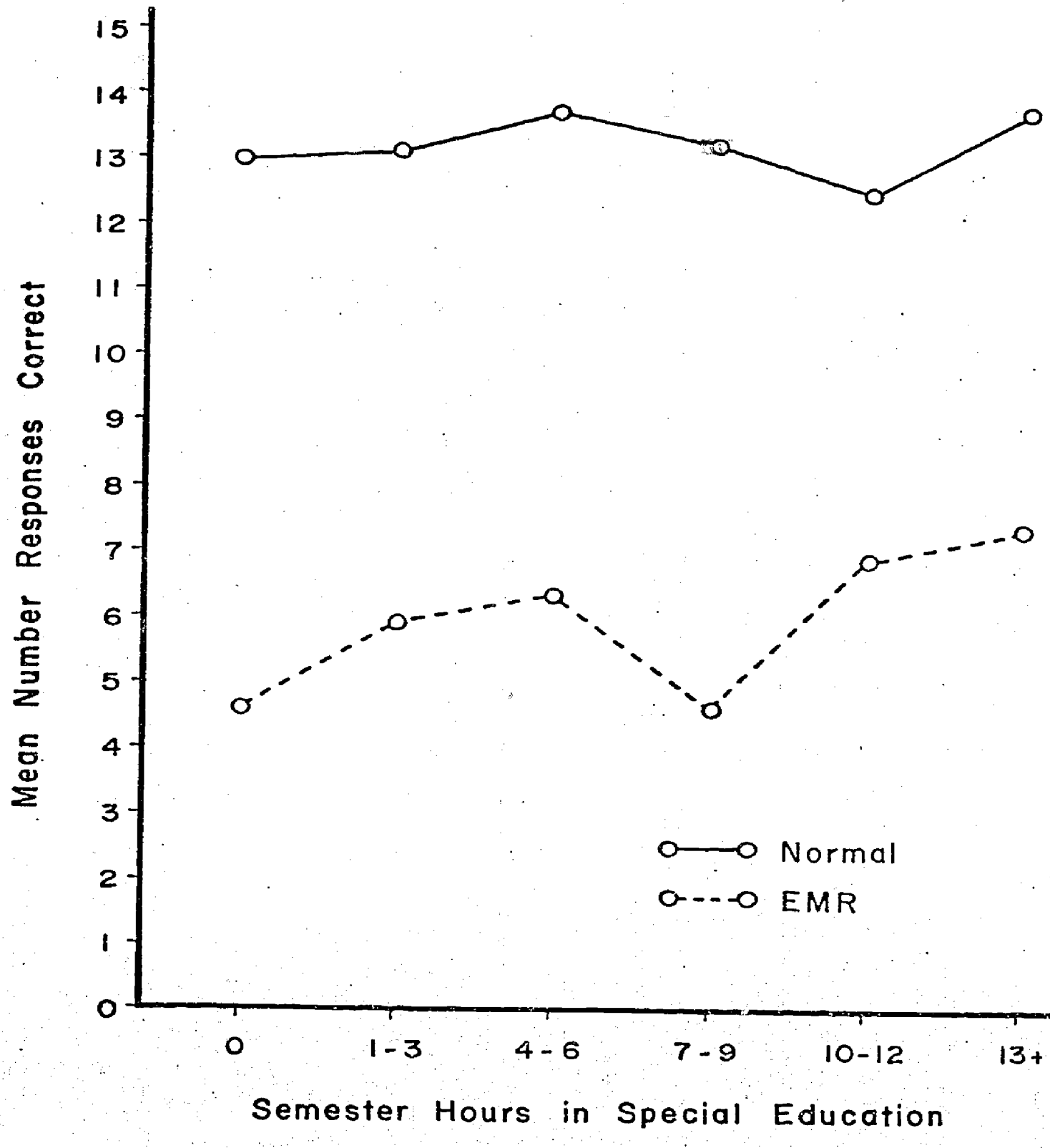

Mean Number Responses Correct
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0
1-3
4-6
7-9
10-12
13+
Semester Hours in Special Education
Normal
EMR

Figure 3. Mean number of responses correct on EMR and non-retarded children for amount of experience with EMR children.

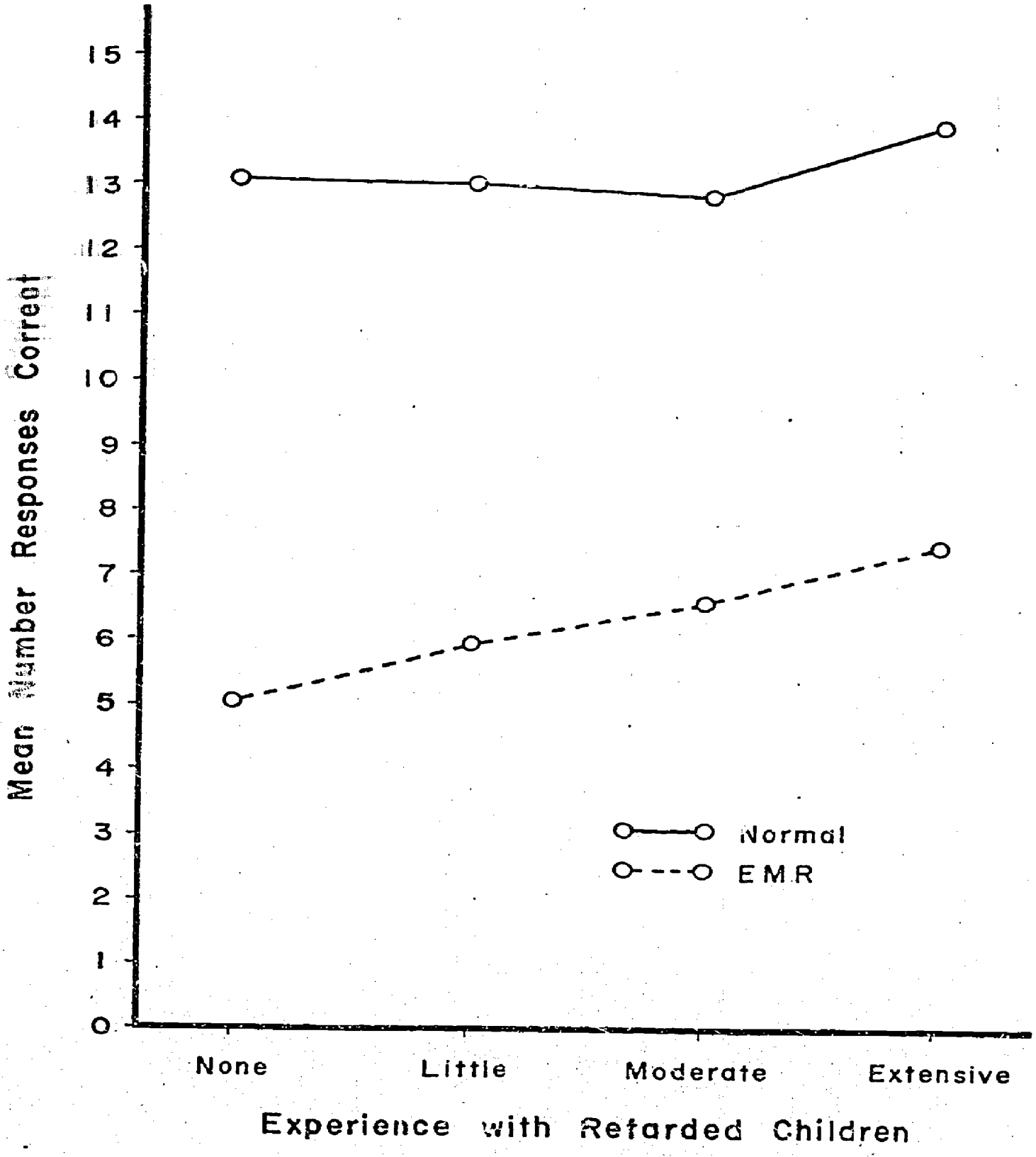
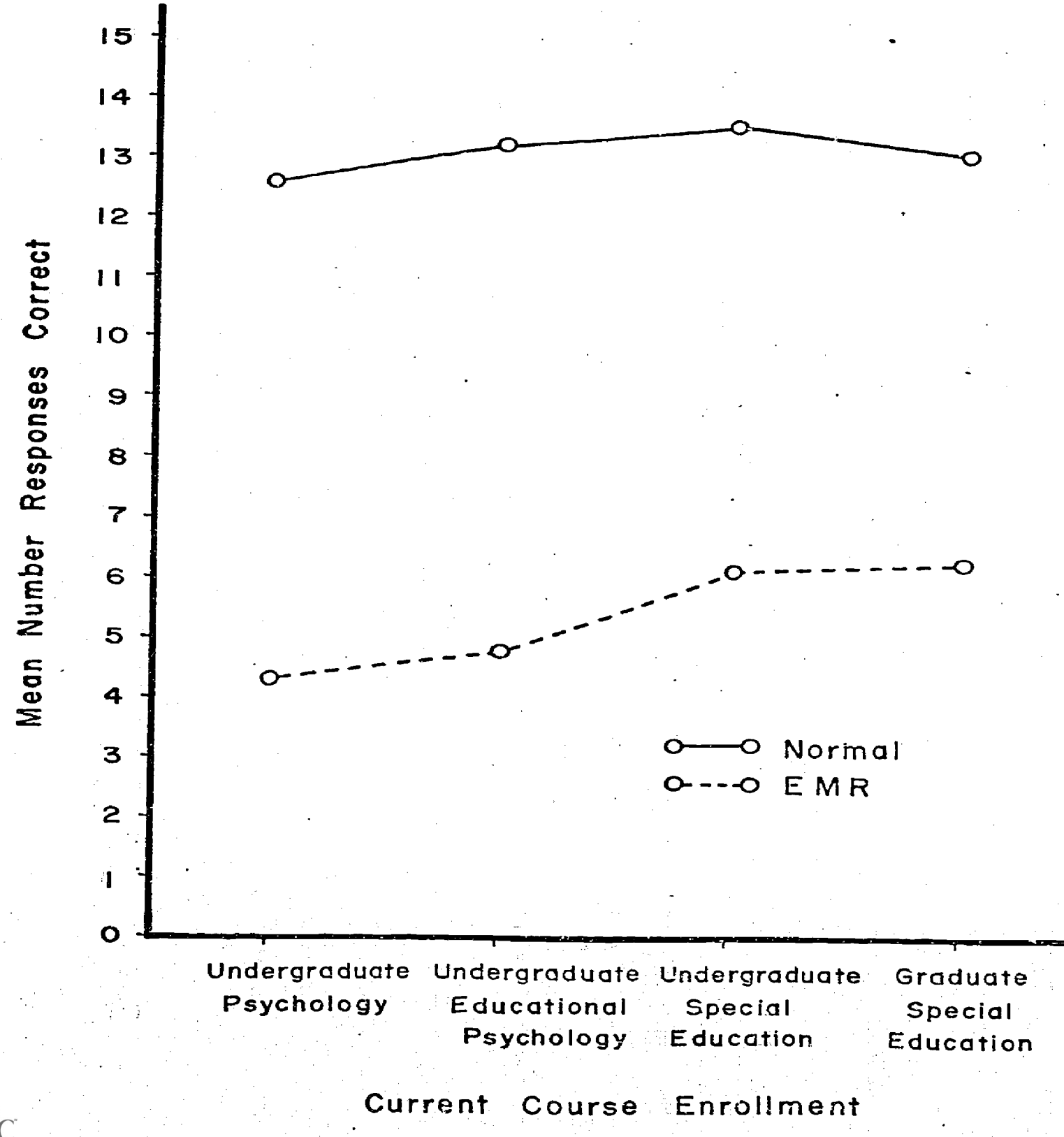

Mean Number Responses Correct
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Normal
EMR
None
Little
Moderate
Extensive
Experience with Retarded Children

Figure 4. Mean number of responses correct on EMR and non-retarded children for current course enrollment of subjects.


Mean Number Responses Correct
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Normal
EMR
Undergraduate Psychology
Undergraduate Educational Psychology
Undergraduate Special Education
Graduate Special Education
Current Course Enrollment

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